SBC826A0

All-in-One
Half-Size PCI CPU CARD
and Serial ATA

User's Manual

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ESD Precautions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.

Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.

Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

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Chapter 1
Introduction

The **SBC826A0** is an industrial grade CPU card. It provides reliable high performance and function-rich capability.

The SBC826A0 with Socket 370 can adapt a wide variety of Celeron and Pentium III microprocessors. The CPU incorporates the VIA CLE266 north bridge and the VT8237 south bridge. The CLE266 provides superior performance between the CPU, SDRAM, V-Link bus and internal AGP-8x VGA controller. The PCI Bus Controller of VT8237 ensures the compatibility with PCI bus passive backplanes.

The SBC826A0 packs the unique features of Graphics (CRT or DVI) +LCD, Serial ATA, Ethernet (Gigabit & Fast), USB2.0 and etc.

Designed for the professional embedded developers, the Socket370 all-in-one **SBC826A0** Half-Size CPU card is virtually the ultimate one-step solution to various applications.

1.1 Specifications

- **CPU:** Socket 370 for Intel Celeron, Pentium III, Tualatin
- **Chipset:** VIA CLE266 and VT8237
- **Bus Clock:** 66,100,133MHz
- **L2 Cache:** Integrated in CPU
- **BIOS:** 4Mbit PnP Flash BIOS
- **System Memory:**
  - 1 x 184-pin DIMM sockets
  - Maximum of 1GB DDR266 RAM
- **IDE Interface:**
  - IDE1 x 40-pin
  - CF with IDE2 channel
  - PIO Mode 0-4, DMA Mode 0-2 and Ultra DMA/33/66/100/133
  - 2 channels of SATA-150 with RAID 0 or 1 supported
  - BIOS programmable for 4 IE channels (2*PATA-133 & 2*SATA-150) as primary/secondary/third/forth IDE
- **Onboard Multi-I/O:**
  - One FDD supporting up to two devices
  - One SPP/EPP/ECP parallel port (box header)
  - Two serial ports: 1x RS-232, 1x RS-232/422/485 selectable via jumper
  - One IrDA for wireless communication
  - One Keyboard Interface
  - One Mouse Interface
  - One Mini-DIN PS/2 connector for Keyboard and Mouse
- **VGA Controller:**
  - AGP interface controller integrated in VIA CLE266
  - Supports DVI/CRT and 24-bit LCD
  - Extended Screen Resolutions up to 1600x1200
  - Supports DualView feature as DVI + TTL LCD
  - LCD Backlight control supported

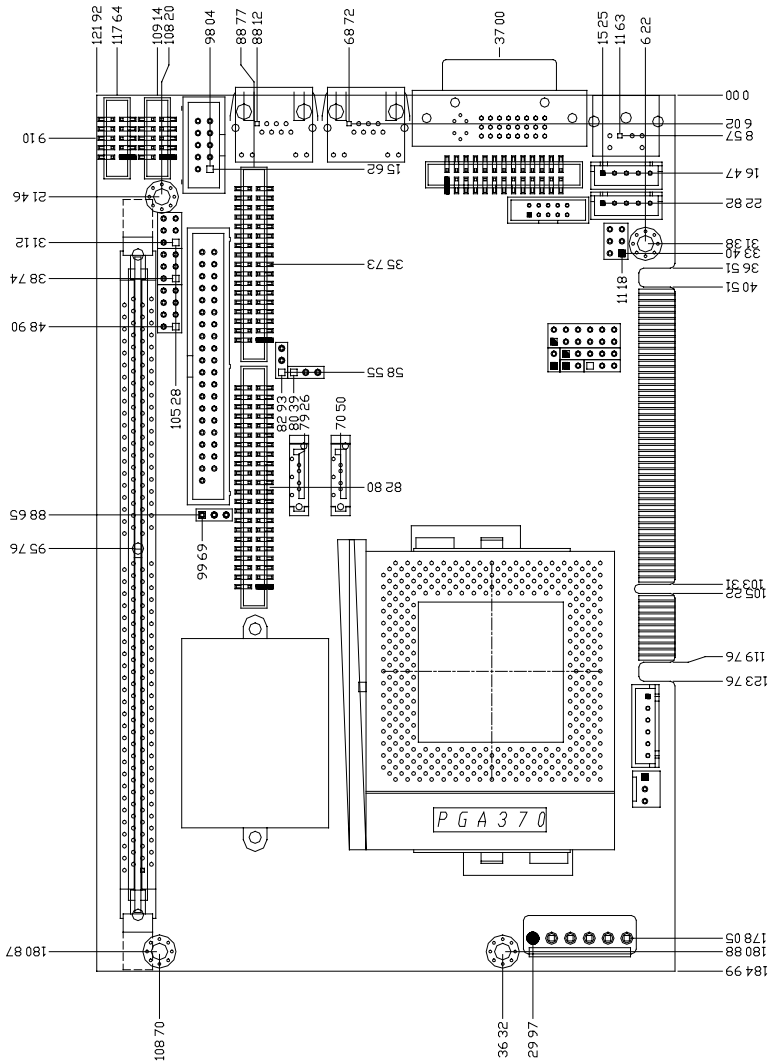
- **Ethernet:**
  - Dual Realtek 8100C PCI Bus 10/100M Base-T or one Realtek 8100C PCI Bus 10/100M Base-T and one Realtek 8110s PCI Bus 10/100/1000M Base-T
  - Wake On LAN (via ATX power supply)
  - Onboard Dual RJ-45 connectors
- **USB Interface:**
  - USB ports; USB Spec. Rev. 2.0 compliant
- **Audio**
  - AC'97 2.2 S/PDIF extension compliant codec
  - 18-bit stereo full duplex SD codec
  - 3D stereo expansion for simulated surround
  - 18-bit independent rate stereo ADC/DAC
  - 4 stereo, 2 mono analog line-level inputs
  - Low Power consumption mode
  - Exceeds Microsoft® WHQL logo requirements
- **Compact Flash TYPE II**
  - Supports CompactFlash memory modules
  - IBM MicroDrive supported
- **Power Management**: ACPI (Advanced Configuration and Power Interface)
- **Watchdog Timer:** Watch Dog Timer Time-out value. of 0~255 second/minutes
- **Operating Temperature:** 0°C~60°C (32°F~140°F)
- **Operating Humidity:** 5%~95%; non-condensing
- **Dimensions:** 121.92 mm x 185 mm
- NOTE: Specifications are subject to change without notice.

1.2 Utilities Supported

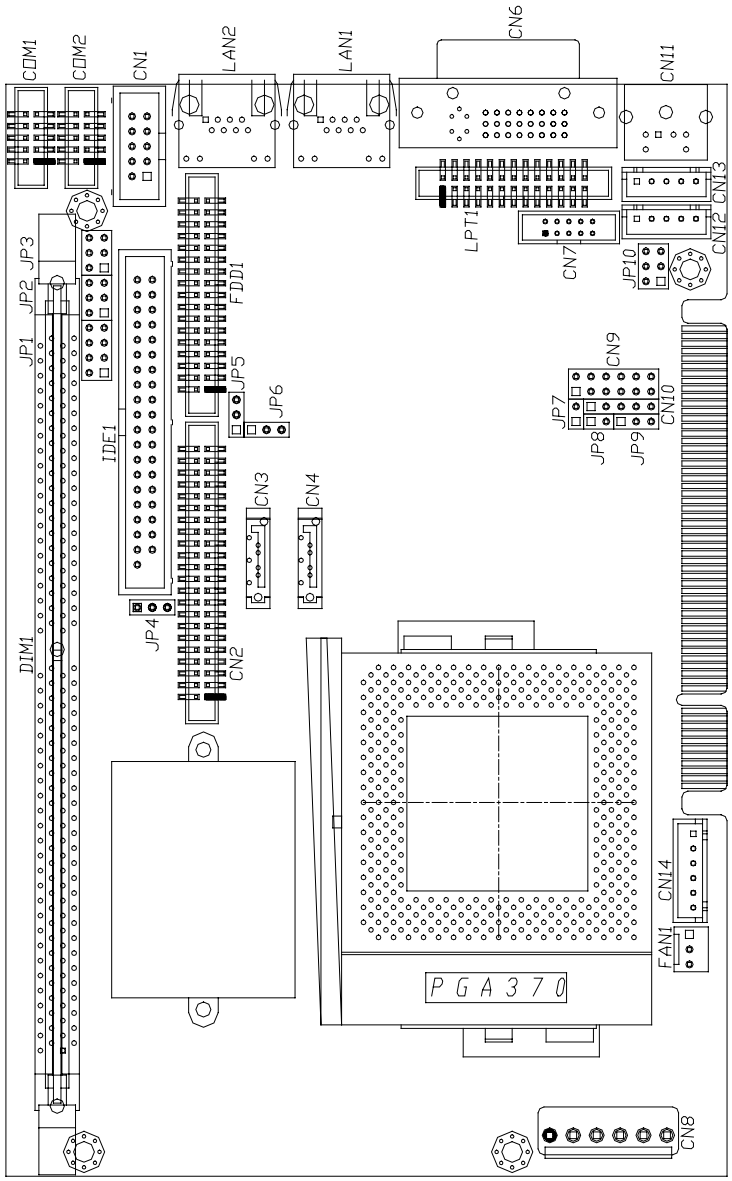
- **VIA Chipset Driver**
- **Ethernet Utility and Drivers**
- **VGA Drivers**

Chapter 2
Jumpers and Connectors

2.1 Board Layout and Fixing Holes



2.2 Connector and Jumper Locations



2.3 Jumper Settings

The SBC826A0 is configured to match the needs of the application by proper jumper settings. The following tables show the correct jumper settings for the onboard devices.

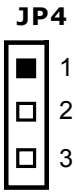
Jumper	Default Setting	Jumper Setting
JP1	COM2 RS232/422/485 Default: RS232	Short 1-2
JP2	COM2 RS232/422/485 Default: RS232	Short 3-5,4-6
JP3	COM2 RS232/422/485 Default: RS232	Short 3-5,4-6
JP4	IGA2 TTL LCD VDD Selection Default: TTL 5V	Short 1-2(5V)
JP5	AT&ATX Selection Default: ATX	Short 2-3
JP6	Clear CMOS Selection Default: VBAT	Short 1-2
JP8	CF Master/Slave Default: Slave	Short
JP9	Compact flash power select Default: 5V	Short 1-2
JP10	Audio Line Out/Speaker Out Jumper Selection Default: Speak Out	Short 3-5,4-6

2.3.1 COM2 Mode Select: JP1, JP2, JP3

COM2	JP3	JP2	JP1
RS-232 (default)	3-5, 4-6	3-5, 4-6	1-2
RS-422	1-3, 2-4	1-3, 2-4	3-4
RS-485	1-3, 2-4	1-3, 2-4	5-6, 7-8

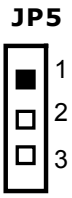
2.3.2 IGA2 TTL LCD VDD Selection (CN2): JP4

VDDM	Settings
5V (TTL default)	Short 1-2
3.3V	Short 2-3



2.3.3 AT&ATX Selection: JP5

Select	Settings
AT POWER	Short 1-2
ATX POWER	Short 2-3(Default)



2.3.4 CMOS Clear Jumper: JP6

Options	Settings
Normal (default)	Short 1-2
Clear CMOS	Short 2-3

2.3.5 Compact flash Master/Slave: JP8

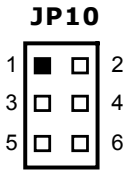
Options	Settings
Slave(default)	Open
Master	Short

2.3.6 Compact flash power select: JP9

Options	Settings
5V(default)	Short 1-2
3.3V	Short 2-3

2.3.7 Audio Line-out / Speaker-out Jumper: JP10

Options	Settings
Line Out	Short 1-3, 2-4
Speaker Out (default)	Short 3-5, 4-6



2.4 Connectors

The connectors allow the CPU card to connect with other parts of the system. The following table lists the function of each connector on the **SBC826A0** and their corresponding pin assignments.

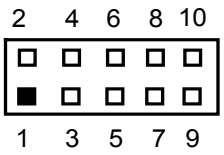
Connectors	Label	Connectors	Label
USB Connector	CN1	Ext PS/2 Mouse Connector	CN13
IGA2 24bit TTL Connector	CN2	ACPI Connector	CN14
S-ATA 1 Connector	CN3	CPU FAN Connector	FAN1
S-ATA 2 Connector	CN4	Floppy Disk Connector	FDD1
DVI Connector	CN6	COM PORT Connector	COM1~2
AUDIO Connector	CN7	PRINT PORT Connector	LPT1
Power Connector	CN8	Compact Flash Slot	CF1
Front Panel Bezel Connector	CN9	IDE Connector	IDE1
IRDA Connector	CN10	LAN RJ45 Connector	LAN1
Keyboard and Mouse Connectors (Mini DIN)	CN11	LAN RJ45 Connector	LAN2
Ext PS/2 Keyboard Connector	CN12		

2.4.1 USB Connector: CN1

The Universal Serial Bus (USB) connector on SBC826A0 is used when installing peripherals supporting the USB interface.

CN1: USB 1 Connector

Pin	Description	Pin	Description
1	VCC	2	VCC
3	USB1+	4	USB2+
5	USB1-	6	USB2-
7	GND	8	GND
9	GND	10	GND



2.4.2 IGA2 24bit TTL Connector: CN2

Pin	Signal	Pin	Signal	Pin	Signal
1	-12V	2	+12VM	3	GND
4	GND	5	VCCM	6	VCCM
7	ENAVEE	8	GND	9	P0
10	P1	11	P2	12	P3
13	P4	14	P5	15	P6
16	P7	17	P8	18	P9
19	P10	20	P11	21	P12
22	P13	23	P14	24	P15
25	P16	26	P17	27	P18
28	P19	29	P20	30	P21
31	P22	32	P23	33	GND
34	GND	35	SHFCLK	36	FLM
37	M	38	LP	39	GND
40	ENABKL	41	GND	42	-SHFCLK
43	VCCM	44	VCCM		

Flat Panel Interface Pins for Color TFT LCD

Pin	18-bit	24-bit
LP	HSYNC	HSYNC
FLM	VSYNC	VSYNC
SHFCLK	CK	CK
M	DE	DE
ENAVDD	ENAVDD	ENAVDD
ENABLK	ENABLK	ENABLK
P23	R5	R7
P22	R4	R6
P21	R3	R5
P20	R2	R4
P19	R1	R3
P18	R0	R2
P17		R1
P16		R0
P15	G5	G7
P14	G4	G6
P13	G3	G5
P12	G2	G4
P11	G1	G3
P10	G0	G2
P9		G1
P8		G0
P7	B5	B7
P6	B4	B6
P5	B3	B5
P4	B2	B4
P3	B1	B3
P2	B0	B2
P1		B1
P0		B0

Flat Panel Connector Pin Description

Name	Description
P0~P35	Flat panel data output
ENABKL	Activity Indicator and Enable Backlight outputs
SHFCLK	Shift clock. Pixel clock for flat panel data
M	M signal for panel AC drive control
LP	Latch pulse. Flat panel equivalent of HSYNC
FLM	First line marker. Flat panel equivalent of VSYNC
+12VM	+12V power controlled by chipset
ENAVEE	Power sequencing controls for panel LCD bias volt
VCCM	3.3V or 5V selected by JP2

2.4.3 SATA-150 Connectors: CN3, CN4

- Dual Channel Serial ATA / RAID Controller
  - Complies with Serial ATA Specification Revision 1.0
  - Dual Channel master mode PCI
  - On-chip two-channel Serial ATA (S-ATA) PHY for support of up to two S-ATA devices directly
  - Supports optional external S-ATA PHY on P-ATA secondary port for support of two additional S-ATA devices
  - Primary P-ATA port can support two P-ATA devices (master and slave) along with two S-ATA devices on the PATA
  - secondary port (with external S-ATA PHY) plus two more S-ATA devices on the direct S-ATA interface
  - S-ATA devices can be configured in multiple RAID configurations - supports RAID Level 0, RAID Level 1, RAID Level 0+1 and JBOD
  - S-ATA drive transfer rate is capable of up to 150 MB/s per channel (serial speed of 1.5 Gbit/s)
  - External Crystal input for Serial ATA port operation

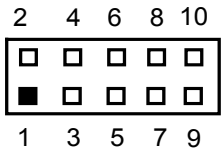
2.4.4 DVI Output Connector: CN6

1	TX2-	2	TX2+
3	Ground	4	NC
5	NC	6	SPCLK
7	SPD DATA	8	CRT-VSYNC
9	TX1-	10	TX1+
11	Ground	12	NC
13	NC	14	VGAVCC
15	Ground	16	FPDETECT
17	TX0-	18	TX0+
19	Ground	20	NC
21	NC	22	Ground
23	TXC+	24	TXC-
C1	CRT-RED	C2	CRT-GREEN
C3	CRT-BLUE	C4	CRT-HSYNC
C5	VGAGND	C6	NC

2.4.5 AUDIO Connector: CN7

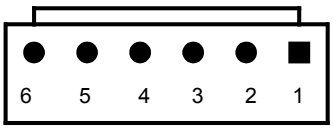
CN7: Audio Connector

Pin	Signal	Pin	Signal
1	MIC-IN	2	GND
3	Line In L	4	GND
5	Line In R	6	GND
7	Audio Out L	8	GND
9	Audio Out R	10	GND

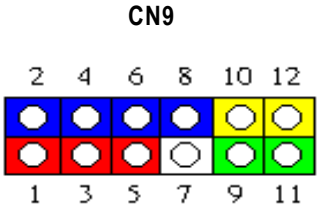


2.4.6 ATX Connector: CN8

Pin	Description
1	+5V
2	GND
3	+12V
4	SB5V
5	GND
6	+5V



2.4.7 Front Panel Bezel Connector: CN9

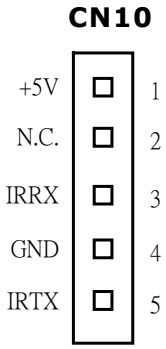


- **Power LED**
  This 3-pin connector, designated at ***Pins 1,3 and 5***, connects the system power LED indicator to its respective switch on the case. ***Pin 1*** is +; ***pin 3 and 5*** is assigned as -. The Power LED lights up when the system is powered ON.
- **External Speaker and Internal Buzzer Connector**
  Pins 2, 4, 6, and ***8 of CN9*** connect to the case-mounted speaker unit or internal buzzer. ***Short pins 4-6*** when connecting the CPU card to an internal buzzer. When connecting an external speaker, set these jumpers to ***Open*** and install the speaker cable on ***pin 8*** (+) and ***pin 2*** (-).
- **System Reset Switch**
  Pins 9 & ***11*** of ***CN9*** connect to the case-mounted reset switch and allow rebooting of your computer instead of turning OFF the power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

- **HDD Activity LED**
  This connector extends to the hard drive activity LED on the control panel. This LED will flash when the HDD is being accessed. ***Pins*** 10 & ***12 of CN9*** connect the hard disk drive and the front panel HDD LED. ***Pins 10*** is -, and ***pin 12*** is assigned as +.

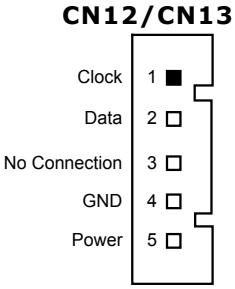
2.4.8 IrDA Connector: CN10

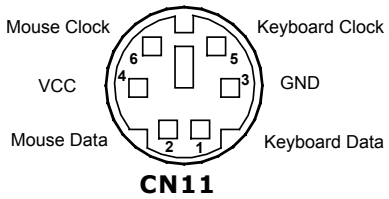
CN10 is a 5-pin Pitch2.54mm IrDA connector for wireless communication.



2.4.9 Keyboard and Mouse Connectors

The **SBC826A0** provides a keyboard **(CN12)** and a mouse **(CN13)** interface with a 5-pin connector. **CN11** is a DIN connector for PS/2 keyboard/Mouse connection.



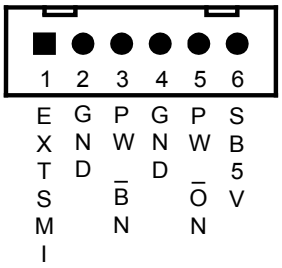


2.4.10 ACPI Connector

Advanced Configuration and Power Interface (ACPI) defines a flexible and extensible interface that allows system designers to select appropriate cost/feature trade-offs for power management. The interface enables and supports reliable power management through improved hardware and operating system coordination. The specification enables new power management technology to evolve independently in operating systems and hardware while ensuring that they continue to work together.

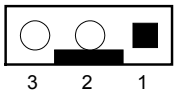
CN14 on the **SBC826A0** is a 6-pin header connector that provides ACPI interface.

CN14



2.4.11 FAN Connector: FAN1

Pin	Description
1	Sensor
2	+12V
3	GND



2.4.12 Floppy Disk Connector: FDD1

The **SBC826A0** provides a 26-pin connector which is the general output for a single floppy drive. The floppy drive could be any one of the following types: 3.5" 720KB or 1.44MB/2.88MB.

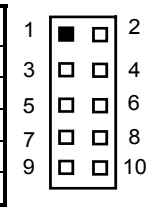
FDD1: FDD Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	GND	2	Reduce write current	3	GND
4	No connector	5	GND	6	No connector
7	GND	8	Index#	9	GND
10	Motor enable A#	11	GND	12	Drive select B#
13	GND	14	Drive select A#	15	GND
16	Motor enable B#	17	GND	18	Direction#
19	GND	20	STEP#	21	GND
22	Write data#	23	GND	24	Write gate#
25	GND	26	Track 0 #	27	GND
28	Write protect#	29	GND	30	Read data#
31	GND	32	Side 1 select#	33	GND
34	Disk change#				

2.4.13 COM PORT Connectors: COM1~2

SBC826A0 uses two 10-pin connectors for COM1 and COM2. Interrupt Requests on COM1 and COM2 which are selected via IRQ4 and IRQ3 respectively. Additionally, both ports can be enabled or disabled via BIOS setting.

Pin	Description	Pin	Description
1	Data Carrier Detect (DCD)	2	Data Set Ready (DSR)
3	Receive Data (RXD)	4	Request to Send (RTS)
5	Transmit Data (TXD)	6	Clear to Send (CTS)
7	Data Terminal Ready (DTR)	8	Ring Indicator (RI)
9	Ground (GND)	10	NC



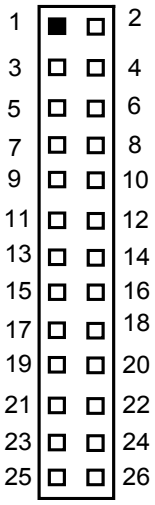
The RS-422/485 pin assignments for **COM2** are listed below.

Pin #	Signal Name	
	R2-422	RS-485
1	TX-	DATA-
2	No connector	No connector
3	TX+	DATA+
4	No connector	No connector
5	RX+	No connector
6	No connector	No connector
7	RX-	No connector
8	No connector	No connector
9	GND	GND
10	No connector	No connector

2.4.14 PRINT PORT Connector: LPT1

LPT1: Parallel Port Connector Pin Assignment

Pin	Description	Pin	Description
1	Strobe#	2	Auto Form Feed#
3	Data 0	4	Error#
5	Data 1	6	Initialize#
7	Data 2	8	Printer Select In#
9	Data 3	10	GND
11	Data 4	12	GND
13	Data 5	14	GND
15	Data 6	16	GND
17	Data 7	18	GND
19	Acknowledge#	20	GND
21	Busy	22	GND
23	Paper Empty#	24	GND
25	Printer Select	26	NC



2.4.15 Compact Flash Slot: CF1

The SBC826A0 Series is equipped with a CompactFlash slot on the solder side and it supports the IDE interface CompactFlash disk card. The socket itself is especially designed to prevent any incorrect installation of the CompactFlash disk card.

When installing or removing the CompactFlash disk card, please make sure that the system power is off.

This page does not contain any information.

Chapter 3
Hardware Description

3.1 Microprocessors

The **SBC826A0** supports Intel Celeron and Pentium III CPUs. Systems based on these CPUs can be operated under Windows XP/NT/2000, Windows 98, DOS and Linux environments. The system performance depends on the microprocessor installed onboard.

3.2 BIOS

System BIOS used on the **SBC826A0** is Phoenix-Award Plug and Play BIOS. The **SBC826A0** contains a single 4Mbit Flash.

3.3 System Memory

The **SBC826A0** industrial CPU board supports one 184-pin DDR DIMM (Dual In-Line Memory Module) socket for a maximum memory of 1GB buffer DDR266 SDRAMs. The memory module can come in sizes of 64MB, 128MB, 256MB, 512MB and 1GB.

3.4 I/O Port Address Map

The Intel Pentium CPU communicates via I/O ports. It has a total of 1KB port addresses available for assignment to other devices via I/O expansion cards.

Address	Devices
000-01F	DMA controller #1
020-03F	Interrupt controller #1
060-06F	Keyboard controller
070-07F	Real time clock, NMI
080-09F	DMA page register
0C0-0DF	DMA controller #2
0F0	Clear math coprocessor busy signal
0F1	Reset math coprocessor
0F8-0FF	Math processor
1F0-1F8	Fixed disk controller
200-207	Game port
250-25F	Reserved
278-27F	Reserved
300-31F	Reserved
360-36F	Reserved
378-37F	Parallel port #1
380-38F	Reserved
3A0-3AF	Reserved
3B0-3BF	MDA video card (including LPT1)
3C0-3CF	VGA card
3D0-3DF	CGA card
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port #1 (COM1)
3E8-3EF	Reserved
2F8-2FF	Serial port #2 (COM2)
2E8-2EF	Reserved
3F0-3FF	Winbond I/O #1

3.5 Interrupt Controller

NMI	Parity check error
IRQ0	System timer output
IRQ1	Keyboard
IRQ2	Interrupt rerouting from IRQ8 through IRQ15
IRQ3	Serial port #2
IRQ4	Serial port #1
IRQ5	Audio
IRQ6	Floppy disk controller
IRQ7	Parallel port #1
IRQ8	Real time clock
IRQ9	Free
IRQ10	Ethernet
IRQ11	Ethernet
IRQ12	PS/2 Mouse
IRQ13	Math coprocessor
IRQ14	Primary IDE channel
IRQ15	Secondary IDE Channel

This page does not contain any information.

Chapter 4
Award BIOS Utility

Chapter 4 describes the different settings available in the Award BIOS that comes with the **SBC826A0**. Also contained here are instructions on how to set up the BIOS configuration.

4.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in the system ROM supports Intel processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for standard devices such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

4.2 BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When the computer is turned *ON*, the Award BIOS is immediately activated. The following message will appear on the screen:

Press <DEL> to Enter Setup

Then, press the <Del> key immediately to enter the Setup utility. The delay of pressing the <Del> key will cause POST (Power-on Self Test) to continue with the test routines, thus preventing invoking the Setup. In this case, the system has to be restarted for entering the BIO setup by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. Besides, turning the system OFF first and then ON again can also restart the system.

When entering the Setup utility, the Main Menu screen will appear on the screen. Various setup functions and exit choices can be selected from this menu.

In general, the arrow keys are used to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

CMOS Setup Utility-Copyright © 1984-2001 Award Software

▸ Standard CMOS Features	▸ Frequency/Voltage Control
▸ Advanced BIOS Features	Load Optimized Defaults
▸ Advanced Chipset Features	Set User Password
▸ Integrated Peripherals	Save & Exit Setup
▸ Power Management Setup	Exit Without Saving
▸ PnP/PCI Configurations	
▸ PC Health Status	
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item F10 : Save & Exit Setup	
F6 : SAVE CMOS TO BIOS	F7 : LOAD CMOS FROM BIOS
Time, Date, Hard Disk Type...	

The section below the setup items in the Main Menu displays the control keys for this menu. Another section located at the bottom of the Main Menu, just below the control keys section, displays information on the currently highlighted item in the list.

NOTE: *If the computer cannot boot after making and saving system changes with Setup, the Award BIOS, via its built-in override feature, resets your system to the CMOS default settings.*

Avoid making any changes to the chipset defaults are strongly recommended. These defaults have been carefully chosen by both Award and the system manufacturer to provide the absolute maximum performance and reliability.

4.2.1 Standard CMOS Setup

"Standard CMOS Setup" is used to record some basic hardware configurations in the computer system and set the system clock and error handling. If the motherboard is already installed in a working system, there is no need to enter this option. However, the Standard CMOS option has to be setup in any of the following situations: the system hardware configurations are changed, the onboard battery fails, and the configuration stored in the CMOS memory is lost or damaged.

Phoenix – Award BIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Jul 20 2004	Item Help
Time (hh:mm:ss)	13 : 9 : 11	
		Menu Level ▶
▶ IDE Primary Master	None	
▶ IDE Primary Slave	None	Change the Day, month, Year and Century
▶ IDE Secondary Master	None	
▶ IDE Secondary Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt on	All, But keyboard	
Base Memory	640K	
Extended Memory	494960k	
Total Memory	491520k	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

At the bottom of the menu are the control keys for the use of this menu. The <F1> key can be pressed in each item field to display the relevant information for help. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following pages describe each item of this menu.

- **Date**
  The date format is <day>, <date> <month> <year>. Press <F3> to show the calendar.

day	The day of week, from Sun to Sat, determined by the BIOS, is read only
date	The date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
month	The month, Jan through Dec.
year	The year, depends on the year of BIOS

- **Time**
  The time format is <hour> <minute> <second> accepting either functional key or numerical key. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Primary Master/Primary Slave/Secondary Master/Secondary Slave**
  This category identifies the type of the channel that is installed in the computer. There are 45 predefined types and 2 user definable types for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.
  Press <PgUp>/<+> or <PgDn>/<–> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of the drive in the system must match with the drive table. The hard disk will not work properly if the improper information within this category is entered. If the disk drive type does not match or is not listed, the Type User is used to define the drive type manually.
  If the Type User is selected, related information has to be entered. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from the hard disk vendor or the system manufacturer.
  If the controller of HDD interface is ESDI, select "Type 1". If the controller of HDD interface is SCSI, select "None". If the controller of HDD interface is CD-ROM, select "None".

CYLS.	number of cylinders	LANDZONE	landing zone
HEADS	number of heads	SECTORS	number of sectors
PRECOMP	write precom	MODE	HDD access mode

If there is no hard disk drive installed, select NONE and press <Enter>.

- **Drive A type/Drive B type**
  The category identifies the types of floppy disk drive A or drive B installed in the computer.

None	No floppy drive installed
360K, 5.25 in	5.25 inch PC-type standard drive; 360Kb capacity
1.2M, 5.25 in	5.25 inch AT-type high-density drive; 1.2MB capacity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb capacity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB capacity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB capacity

- **Halt On**
  This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected. (default)
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

4.2.2 Advanced BIOS Features

This section is used to configure and improve the system and set up some system features according to the user's preference.

Phoenix – Award BIOS CMOS Setup Utility
Advanced BIOS Features

Hard Disk Boot Priority	Press Enter	Item Help
Virus Warning	Disabled	
CPU Internal Cache	Enabled	Menu Level ►
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Enabled	Allows you to
First Boot Device	Floppy	choose the VIRUS
Second Boot Device	HDD-0	warning feature
Third Boot Device	LS120	for IDE Hard disk
Boot Other Device	Enabled	boot sector
Onboard LAN boot Rom	Disable	protection. If this
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	function is enable
Boot Up NumLock Status	On	and someone
Gate A20 Option	Fast	attempts to write
Typematic Rate Setting	Disabled	data into this area,
Typematic Rate (Chars/Sec)	6	BIOS will show
Typematic Delay (Msec)	250	a warning
Security Option	Setup	message on
MPS Version Control For OS	1.4	screen and alarm
OS Select For DRAM > 64MB	Non-OS2	beep
Video BIOS Shadow	Enabled	
Small Logo(EPA) Show	Disabled	
Display Board ID Message	Disabled	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **Virus Warning**
  This item protects the boot sector and partition table of the hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, the user can either continue the operation or run an anti-virus program to locate and remove the problem.

  NOTE: *Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. Thus, disable the Virus Warning feature while running any of these programs.*

- **CPU Internal Cache / External Cache**
  Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type and up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These items are used to enable (speed up memory access) or disable the cache function. By default, these are ***Enabled***.

- **CPU L2 Cache ECC Checking**
  When enabled, this allows ECC checking of the CPU's L2 cache. By default, this field is ***Enabled***.

- **Processor Number Feature**
  When a Pentium® III CPU is installed, the system automatically detects it and displays this item.

- **Quick Power On Self Test**
  This option speeds up Power-on Self Test (POST) after turning on the system power. If it is set as Enabled, BIOS will shorten or skip some check items during POST. The default setting is *"Enabled"*.

Enabled	Enable Quick POST
Disabled	Normal POST

- **First/Second/Third Boot Device**
  These items allow the selection of the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, ZIP100, HDD0~3, SCSI, CDROM, USB Floppy, USB CDROM, USB, HDD and LAN.

- **Boot Other Device**
  This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is *Enabled*.

- **Onboard LAN boot rom**

  Choice Enable when you need boot on LAN Function, Like PXE ,RPL.

- **Swap Floppy Drive**
  This allows you to determine whether to enable Swap Floppy Drive or not. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to *"Disabled".*

- **Boot Up Floppy Seek**
  During POST, BIOS will determine the floppy disk drive type, 40 or 80 tracks. 360Kb type is 40 tracks while 720Kb, 1.2MB and 1.44MB are all 80 tracks. The default value is *"Enabled"*.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. There will be no warning message displayed if the drive installed is 360K.

- **Boot Up NumLock Status**
  This option enables and disables the numberlock function of the keypad. The default value is *"On"*.

On	Keypad functions confine with numbers
Off	Keypad functions convert to special functions (i.e., left/right arrow keys)

- **Gate A20 Option**
  The default value is *"Fast"*.

Normal	The A20 signal is controlled by keyboard controller or chipset hardware.
Fast	Default: Fast. The A20 signal is controlled by Port 92 or chipset specific method.

- **Typematic Rate Setting**
  This determines the typematic rate of the keyboard. The default value is *"Disabled"*.

Enabled	Enable typematic rate and typematic delay programming
Disabled	Disable typematic rate and typematic delay programming. The system BIOS will use default value of these 2 items and the default is controlled by keyboard.

- **Typematic Rate (Chars/Sec)**
  This option refers to the number of characters the keyboard can type per second. The default value is *"6"*.

6	6 characters per second
8	8 characters per second
10	10 characters per second
12	12 characters per second
15	15 characters per second
20	20 characters per second
24	24 characters per second
30	30 characters per second

- **Typematic Delay (Msec)**
  This option sets the display time interval from the first to the second character when holding a key. The default value is *"250"*.

250	250 msec
500	500 msec
750	750 msec
1000	1000 msec

- **Security Option**
  This item limits the access to the system and Setup, or just to Setup. The default value is *"Setup"*.

System	The system will not boot and access to Setup will be denied if the incorrect password is entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

NOTE: *To disable security, select PASSWORD SETTING at Main Menu and then password is asked to enter. Do not type anything, just press <Enter> and it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.*

- **OS Select for DRAM > 64MB**
  This segment is specifically created for OS/2 when DRAM is larger than 64MB. If the operating system is OS/2 and DRAM used is larger the 64MB, "OS 2" has to be selected; otherwise (under non-OS2), default is "NON-OS2".

- **Video BIOS Shadow**
  Video shadowing increases the video speed by copying the video BIOS into RAM. However, it is still optional depending on the chipset design. The default value of this option is *"Enabled"*.

Enabled	Video BIOS shadowing is enabled
Disabled	Video BIOS shadowing is disabled

4.2.3 Advanced Chipset Features

Since the features in this section are related to the chipset on the CPU board and are completely optimized, changing the default settings in this setup table are not recommended unless the user is well oriented with the chipset features.

Phoenix – Award BIOS CMOS Setup Utility
Advanced Chipset Features

DRAM Clock/Drive Control	Press Enter	Item Help
AGP & P2P Bridge Control	Press Enter	
CPU & PCI Bus Control	Press Enter	Menu Level ▶
Memory Hole	Disabled	
System BIOS Cacheable	Disabled	
Video RAM Cacheable	Disabled	
VGA Share Memory Size	32M	
Select Display Device	CRT	
Panel Type	1027X768 18 bit	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **Memory Hole**
  To improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB. The available choices are 15M-16M and Disabled.
- **System BIOS Cacheable**
  Selecting "*Enabled*" allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.
  The choice: Enabled, Disabled.
- **Video RAM Cacheable**
  Selecting "Enabled" allows caching of the A/B segment, resulting in better system performance.
  The choice: Enabled, Disabled.
- **VGA Share Memory Size**
  This field selects the memory size that is shared by the VGA.
- **Select Display Device**
  This field selects the type of display CRT/DVI, CRT/LCD, CRT, LCD, DVI connector.

4.2.3.1 DRAM CLOCK/DRIVER CONTROL

Phoenix – Award BIOS CMOS Setup Utility
DRAM clock / Drive Control

		Item Help
Current FSB Frequency	100 MHz	
Current DRAM Frequency	133MHz	
DRAM Clock	By SPD	Menu Level ►
DRAM Timing	By SPD	
DRAM Cas Latency	2.5	
Bank Interleave	Disabled	
Precharge to Active (Trp)	3T	
Active to Precharge (Tras)	6T	
Active to CMD (Trcd)	3T	
DRAM Command Rate	2T Command	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **Current FSB Frequency**
  This field shows the detected FSB of the CPU.
- **Current DRAM Frequency**
  This field shows the detected frequency of the DRAM.

4.2.3.2 DRAM Clock

100 MHz The memory clock speed will run at 200MHz.
133 MHz The memory clock speed will run at 266MHz.

Phoenix – Award BIOS CMOS Setup Utility DRAM clock / Drive Control		
AGP Aperture Size	64M	Item Help
AGP Driving Control	Auto	
AGP Driving Value	DA	Menu Level ►
AGP Fast Write	Disabled	
AGP Master 1 WS Write	Disabled	
AGP Master 1 WS Read	Disabled	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **AGP Aperture Size**
  The field sets aperture size of the graphics. The aperture is a portion of space. Host cycles that hit the aperture range are forwarded to the AGP without any translation
- **AGP Master 1 WS Write**
  When *"Enabled",* writes to the AGP (Accelerated Graphics Port) executed with one wait states.
- **AGP Master 1 WS Read**
  When *"Enabled",* read to the AGP (Accelerated Graphics Port) executed with one wait states.
- **AGP Driving Control**
  This item adjusts the AGP driving force. 'Manual' is chosen to key-in an AGP Driving Value. 'Auto' is recommended for avoiding any error in the system.
- **AGP Driving Value**
  This item adjusts the AGP driving force.
- **AGP Fast Write**
  This item enables the AGP model into fast write mode.

4.2.4 Integrated Peripherals

This option sets the hard disk configuration, mode and port.

Phoenix – Award BIOS CMOS Setup Utility Integrated Peripherals		
VIA OnChip IDE Device	Press Enter	Item Help
VIA OnChip PCI Device	Press Enter	
Super I/O Device	Press Enter	Menu Level ►
Init Display First	PCI Slot	
V-Link Data 2X Support	Disabled	
IDE HDD Block Mode	Enabled	
Watch Dog Timer Select	Disabled	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **Init Display First**
  This item allows you to decide to active whether PCI Slot or AGP first. The options available are PCI Slot, AGP.
- **IDE HDD Block Mode**
  This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

4.2.4.1 VIA OnChip IDE Device

Phoenix – Award BIOS CMOS Setup Utility VIA OnChip IDE Device		
OnChip SATA	Enabled	Item Help
SATA Mode	IDE	
IDE DMA Transfer Access	Enabled	Menu Level ►
OnChip IDE Channel 0	Enabled	
OnChip IDE Channel 1	Enabled	
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
IDE HDD Block Mode	Auto	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **OnChip SATA**
  The choice: Enabled, Disabled.
- **SATA Mode**
  This option allows you to setup your Serial ATA work with the modes below:
  - **IDE Mode:** On-Chip Serial ATA configuration.
  - **RAID Mode:** Support Software RAID
- **OnChip IDE Channel0**
  The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.
- **IDE Prefetch Mode**
  The onboard IDE drive interface supports IDE prefetching for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to *Disabled* if the interface does not support prefetching.

- **Primary Master/Slave PIO**
  The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the two IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The options available are Auto, Mode 0, Mode 1, Mode 2, Mode 3, and Mode 4.
- **Primary Master/Slave UDMA**
  Ultra DMA 66/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software support Ultra DMA 33/66/100, select Auto to enable BIOS support. The options available are Auto, Mode 0, Mode 1, and Mode 2.

4.2.4.2 VIA OnChip PCI Device

Phoenix – Award BIOS CMOS Setup Utility VIA OnChip PCI Device		
VIA 3058 Audio	Auto	Item Help
OnChip USB Controller	Enable	
OnChip EHCI Controller	Enabled	Menu Level ►
USB Device Function	Disabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **OnChip USB**
  This should be enabled if the system has a USB installed on the system board and the USB will be used. Even when equipped, if a higher performance controller is added, this feature should be disabled.
  The choice: Enabled, Disabled.
- **USB Keyboard Support**
  Select "*Enabled*" if the system contains a Universal Serial Bus (USB) controller and you have a USB keyboard. The choice: Enabled, Disabled.

4.2.4.3 Super IO Device

Phoenix – Award BIOS CMOS Setup Utility Super IO Device		
Onboard FDC Controller	Enabled	Item Help
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	Menu Level ►
UART Mode Select	Normal	
RxD, TxD Active	Hi, Lo	
IR Transmission Delay	Enabled	
UR2 Duplex Mode	Half	
Use IR Pins	IR-Rx2Tx2	
Onboard Parallel Port	[378/IRQ7	
Parallel Port Mode	SPP	
EPP Mode Select	EPP1.7	
ECP Mode Use DMA	3	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **Onboard FDD Controller**
  Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install and-in FDC or the system has no floppy drive, select Disabled in this field. The options available are Enabled, Disabled.
- **Onboard Serial Port 1/Port 2**
  Select an address and corresponding interrupt for the first and second serial ports. The options available are 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.
- **UART 2 Mode**
  The second serial port offers these infrared interface modes:
  - IrDA
  - ASKIR IrDA-compliant serial infrared port
  - Normal (default value)

  NOTE: *The UART Mode Select will not appear on the menu once you disable the setting of Onboard Serial Port 2.*

  When UART Mode Select is set as ASKIR or IrDA, the options RxD, TxD Active and IR Transmittion delay will appear.

- **IR Function Duplex**
  This item allows you to select the IR half/full duplex function.
- **TX, RX inverting enable**
  This item enables the TX, RX inverting which depends on different H/W requirement. This field is not recommended to change its default setting for avoiding any error in your system.
- **Onboard Parallel Port**
  This item allows you to determine access onboard parallel port controller with which I/O address. The options available are 378H/IRQ7, 278H/IRQ5, 3BC/IRQ7, Disabled.
- **Onboard Parallel Port Mode**
  Select an operating mode for the onboard parallel (printer) port. Select Normal unless your hardware and software require one of the other modes offered in this field. The options available are EPP1.9, ECP, SPP, ECPEPP1.7, EPP1.7.
- **ECP Mode Use DMA**
  Select a DMA channel for the parallel port for use during ECP mode.
- **Parallel Port EPP Type**
  Select EPP port type 1.7 or 1.9.

4.2.5 Power Management Setup

The Power Management Setup is to save energy of the system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.

Phoenix – Award BIOS CMOS Setup Utility
Power Management Setup

		Item Help
ACPI Function	Enabled	
Power Management Option	User Define	
HDD Power Down	Disabled	Menu Level ►
Suspend Mode	Disable	
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Instant-Off	
Ac Loss Auto Restart	Off	
IRQ /Event Activity Detect	Press Enter	

↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **ACPI Function**
  This item is to enable/disable the Advanced Configuration and Power Interface (ACPI).
  The choice: Enabled, Disabled.

- **Power Management Option**
  This item is to select the Power Management mode.
  The choice: User Define, Min Saving, Max Saving.

- **Video Off Option**
  When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving modes.
Suspend --> Off	Monitor blanked when the system enters the Suspend mode.
Susp, Stby --> Off	Monitor blanked when the system enters either Suspend or Standby modes.
All Modes --> Off	Monitor blanked when the system enters any power saving mode.

- **Video Off Method**
  This determines the manner in which the monitor is blanked.

V/H SYNC + Blank	This causes the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
DPMS	Select this option if your monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values.
Blank Screen	This option only writes blanks to the video buffer.

- **Video Off Method**
  In suspending, this item is to select the CRT closed method under APM mode.
  The choice: Blank Screen, V/H SYNC+Blank, DPMS

- **MODEM Use IRQ**
  APM 1.2 function used only.
  The choice: NA, 3, 4, 5, 7, 9, 10, 11

- **Soft-off by PWRBTN**
  This only works with the system using an ATX power supply. It also allows user to define the type of soft power OFF sequence for the system to follow.

Instant-Off (default)	This option follows the conventional manner systems perform when power is turned OFF. Instant-Off is a soft power OFF sequence requiring only the switching of the power supply button to OFF.
Delay 4 Sec.	Upon turning OFF system from the power switch, this option will delay the complete system power OFF sequence by approximately 4 seconds. Within this delay period, system will temporarily enter into Suspend Mode enabling you to restart the system at once.

4.2.6 PNP/PCI Configuration

Phoenix – Award BIOS CMOS Setup Utility PnP/PCI Configurations		
PNP OS Installed	No	Item Help
Reset Configuration Data	Disabled	Menu Level ►
Resources Controlled By	Auto (ESCD)	
XIRQ Resources	Press Enter	Select Yes if you are using a Plug and play capable operating system select No if you need the BIOS to configure non-boot devices
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **PNP OS Installed**
  This item is to determine install PnP OS or not. The options available are Yes and No.
- **Reset Configuration Data**
  Normally, this field is *"Disabled"*. Select *"Enabled"* to reset Extended System Configuration Data (ESCD). When exiting Setup or installed a new add-on, the system reconfiguration has caused such a serious conflict that the operating system cannot boot. The options available are Enabled and Disabled to configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95. The options available are Auto and Manual.
- **Resource controlled by**
  The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and the Plug and Play compatible devices. However, this capability means absolutely nothing unless using a Plug and Play operating system such as Windows®98. The options available are Auto and Manual.

- **IRQ Resources**
  When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.
- **PCI/VGA Palette Snoop**
  Leave this field at "*Disabled*".
  The choice: Enabled, Disabled.
- **Assign IRQ For USB/VGA**
  This item is to enable or disable the IRQ assignment for USB/VGA.
  The options available are Enabled, Disabled

4.2.7 PC Health Status

This section is to monitor the current hardware status of the CPU fan speeds and the core voltages. This is available only if there is hardware monitoring mechanism onboard.

Phoenix – Award BIOS CMOS Setup Utility PC Health Status		
CPU Warning Temperature	Disabled	Item Help
System Temperature	42C/107F	
CPU Temperature	42C/107F	Menu Level ►
Current CPU FAN1 Speed	4020 RPM	
Vcore	1.346	
2.5V	2.53	
3.3V	3.35	
5V	5.05	
12V	12.3	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **Current CPUFAN Speed**
  These optional and read-only fields show the current speeds in RPM (revolution per minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.
- **2.5V/3.3V/5V/12V**
  Show the voltage of 2.5V/3.3V/5V/12V

4.2.8 Frequency/Voltage Control

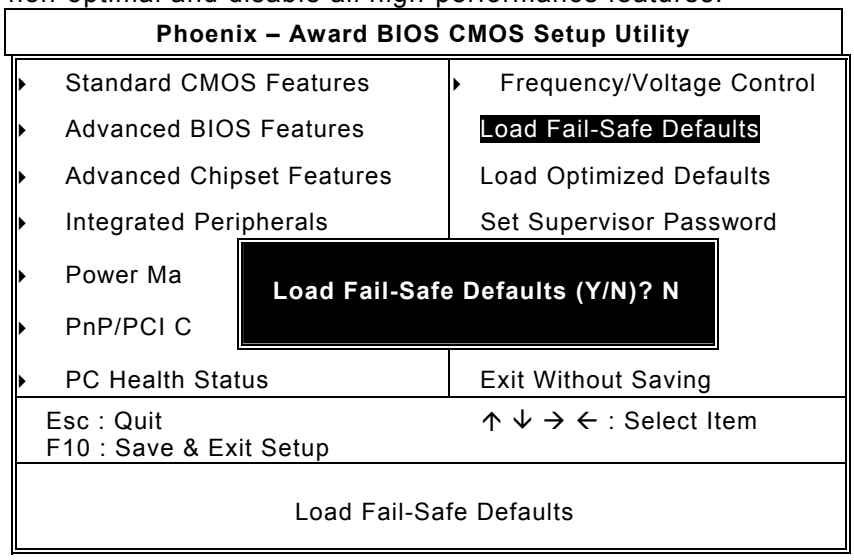
CMOS Setup Utility-Copyright © 1984-2001 Award Software Frequency/Voltage Control		
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	Disabled	Menu Level ►
CPU Clock	133	
↑↓→← : Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

- **Auto Detect DIMM/PCI Clk**
  When enabled, this item will auto detect if the DIMM and PCI socket have devices and will send clock signal to DIMM and PCI devices. When disabled, it will send the clock signal to all DIMM and PCI socket.
  The choice: Enabled, Disabled.

- **Spread Spectrum**
  This item is to enable/disable the spread spectrum modulate.
  The choice: Enabled, Disabled.

4.2.9 Load Fail-Safe Defaults

This option is to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.



To load BIOS defaults value to CMOS SRAM, enter "Y". If not, enter "N".

4.2.10 Set Supervisor/User Password

Either supervisor or user password, or both of them can be set in this option. The differences between them are:

- **supervisor password:**
  can enter and change the options of the setup menus.
- **user password:**
  just can enter but do not have the right to change the options of the setup menus.

When this function is selected, the following message will appear at the center of the screen for creating a password.
ENTER PASSWORD:

Type the password with eight characters at most, and press <Enter>. The password typed will now clear any previously entered password from CMOS memory. Then, confirm the password by typing the password again and pressing <Enter>. Or, not enter a password and abort the selection by pressing <Esc>.

To disable the password by pressing <Enter> without typing in any password when the message "Enter Password" is showed. Then, message below will appear to confirm that the password has been disabled.

PASSWORD DISABLED.

Once the password is disabled, the system will boot and enter Setup freely.

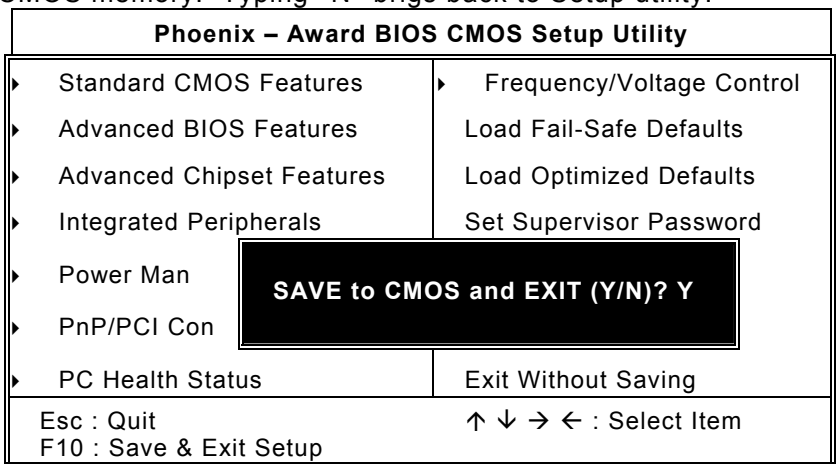
When a password is enabled, it has to be typed to enter the Setup every time. This prevents any unauthorized person from changing the system configuration.

Additionally when a password is enabled, the BIOS can also set to request a password every time the system reboots. This would prevent unauthorized use of the computer.

The user can determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password is required during boot up and entry into Setup. If it set as "Setup", prompting will only occur prior to entering Setup.

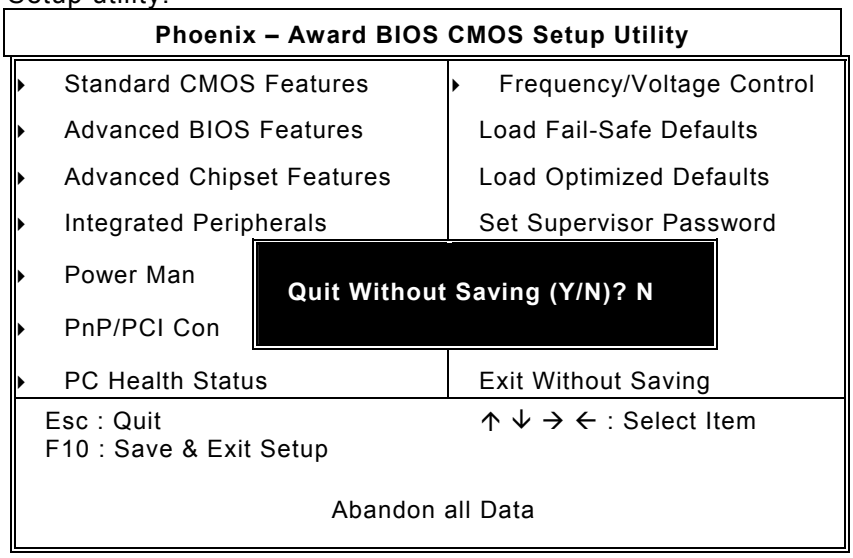
4.2.11 Save & Exit Setup

This is to determine whether or not to accept the modifications. Typing "Y" quits the setup utility and saves all changes into the CMOS memory. Typing "N" brigs back to Setup utility.



4.2.12 Exit Without Saving

Select this option to exit the Setup utility without saving the changes made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return to Setup utility.



Appendix A

Serial ATA Setup Information

The board provides the last technology IDE connector. The two slim type connector of Serial ATA are for fast IDE data transfer. Nowadays the Serial ATA can provide the data transfer rate up to 150MB/sec. This is better than the traditional Parallel ATA (Ultra ATA/133) interface for 133MB/sec.

On-Chip Serial ATA configuration:

This option is to disable or enable the Serial ATA devices:

- **Disable:** this disables any Serial ATA Device.
- **Enabled:** this enables any Serial ATA Device.

Serial ATA Port Mode:

This option is to setup the Serial ATA work with the modes below:

- **IDE Mode**: On-Chip Serial ATA configuration
- **RAID Mode:** Software RAID support

This page does not contain any information.

Appendix B
Watchdog Timer

Watchdog Timer Setting

The watchdog timer makes the system auto-reset while it stops to work for a period. The integrated watchdog timer can be setup as system reset mode by program.

- **Timeout Value Range**
  - 1 to 255
  - Second or Minute
- **Program Sample**

Watchdog timer setup as system reset with 5 second of timeout

2E, 87	
2E, 87	
2E, 07	
2F, 08	Logical Device 8
2E, 30	Activate
2F, 01	
2E, F3	Set as Second*
2F, 00	
2E, F4	Set as 5
2F, 05	

- Minute: bit 4 = 1; Second: bit 4 = 0

Using the Watchdog Function

Start

↓

Un-Lock WDT :O 02E 87 ; Un-lock super I/O
O 02E 87 ; Un-lock super I/O

↓

Select Logic device : O 02E 07
O 02F 08

↓

Set Second or Minute :O 02E F3
O 02F 0X; X=0,Second
X=4,Minute

↓

Set base timer :O 02E F4
O 02F MN ;MN=00,01,02,...FF ,Value=0 to 255

↓

Activate WDT :O 02E 30
O 02F 01

↓

WDT counting

↓

re-set timer :O 02E F4
O 02F MN ; MN=00,01,02,...FF

↓

IF No re-set timer :WDT time-out, generate RESET

↓

IF to disable WDT :O 02E 30
O 02F 00 ; Can be disable at any time